



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,076	04/05/2001	Stephen A. Empedocles	019916-004300US	6626

20350 7590 05/09/2003

TOWNSEND AND TOWNSEND AND CREW, LLP  
TWO EMBARCADERO CENTER  
EIGHTH FLOOR  
SAN FRANCISCO, CA 94111-3834

EXAMINER

TRAN, MY CHAU T

ART UNIT	PAPER NUMBER
----------	--------------

1639

DATE MAILED: 05/09/2003

19

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/827,076

Applicant(s)

EMPEDOCLES ET AL.

Examiner

My-Chau T. Tran

Art Unit

1639

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 March 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-19,58 and 59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-19,58 and 59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 03 March 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Continued Prosecution Application***

1. The request filed on 3/7/03 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/827,076 is acceptable and a CPA has been established. An action on the CPA follows.

2. Applicant's amendment filed 3/3/03 in Paper No. 18 is acknowledged and entered. Claims 20-57 are canceled by the amendment. Claims 1, 9-11, and 58 are amended by the amendment. Claim 59 is added by the amendment.

3. Claims 1, 3-19, and 58-59 are pending.

***Drawings***

4. The drawings filed on 3/3/03 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftsperson's Patent Drawing Review," PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

5. Claims 1, 3-19, and 58-59 are treated on the merit in this Office Action.

Art Unit: 1639

**Withdrawn Rejections**

6. The previous rejections under 35 USC 102(e) as being anticipated by Bawendi et al (US Patent 6,326,144 B1) for claims 1 and 3-7 have been withdrawn in view of applicant's amendments of claim 1.

7. The previous rejections under 35 USC 103(a) as being obvious over Bawendi et al (US Patent 6,326,144 B1) in view of either Lewis et al (US Patent 5,377,003) or Nagoshi et al. (US Patent 5,495,334) for claims 8-19 and 58 have been withdrawn in view of applicant's amendments of claims 1 and 58.

8. The previous rejections under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of copending Application No. 09/827,013 (Empedocles et al.) for claims 1 and 3-5 have been withdrawn in view of applicant's amendments of claim 1.

9. The previous rejections under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of copending Application No. 09/827,013 (Empedocles et al.) in view of Bawendi et al. (US Patent 6,326,144 B1) for claims 6-7 have been withdrawn in view of applicant's amendments of claim 1.

***New Rejections – Necessitated by Amendment***

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1639

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1 and 59 is rejected under 35 U.S.C. 102(e) as being anticipated by Kauvar et al. (US Patent 6,492,125 B2; *filing date of 6/14/1999*).

*The instant claimed "system" comprises of a plurality of spatially resolved (claim 59) labels generating identifiable spectra, a first family of the labels generating identifiable spectra having first signal, a detector, and an analyzer coupled to the detector. The spectra comprise a plurality of signals for each label, wherein some of the label being distributed in two dimensions (claim 59). The first label of the first family included an associated second signal.*

Kauvar et al. disclose labels (system) that are particulate materials, which contain a least two different signal-generating moieties (col. 2, lines 39-41). The moieties generating signals that can be distinguished in situ, such as light of different wavelengths (col. 2, lines 56-61). These labels are distinguishable by any instrumentation which contains separate means for each of the at least two in situ signals generated. The detector comprise of appropriate filters or other means, such as prism or grating (col. 2, lines 61-65). In addition to detect the location of individual analytes on a microscopic level (claim 59; spatially resolved labels), the label may be used macroscopically to map physiological phenomena (col. 3, lines 4-7). Therefore, the labels of Kauvar et al. anticipate the instant claimed system.

Art Unit: 1639

12. Claim 58 is rejected under 35 U.S.C. 102(e) as being anticipated by Herron et al. (US Patent 6,108,463; 102(e) date 8/18/1998).

*The instant claimed "system" comprises of a plurality of spatially resolved labels generating identifiable spectra, a first family of the labels generating identifiable spectra having first signal, a detector, and a spatial position indicator to identify label positions. The spectra comprise a plurality of signals for each label. The first label of the first family included an associated second signal.*

Herron et al. disclose a waveguide sensor (system) that comprise of different capture molecules, tracer molecules, and labels with the purpose of detecting different analytes of interest in a sample solution (col. 13, lines 22-29; fig. 24). The waveguide is illuminated by one or more different wavelength of light appropriate to excite all the fluorophores located within the evanescent region of the waveguide (col. 13, lines 34-37). If spatial resolution is desired in addition to wavelength selection, the light passing through the filter passes through a second lens which image the light onto a spatially-resolved photodetector such as a CCD or diode array (col. 13, lines 48-54).

### ***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1639

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 1, 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kauvar et al. (US Patent 6,492,125 B2) and Bawendi et al (US Patent 6,326,144 B1).

*The instant claimed "system" comprises of a plurality of labels generating identifiable spectra, a first family of the labels generating identifiable spectra having first signal, and a detector. The spectra comprise a plurality of signals for each label. The first label of the first family included an associated second signal. The labels comprise of semiconductor nanocrystal.*

Kauvar et al. disclose labels (system) that are particulate materials, which contain a least two different signal-generating moieties (col. 2, lines 39-41). The moieties generating signals that can be distinguished in situ, such as light of different wavelengths (col. 2, lines 56-61). These labels are distinguishable by any instrumentation which contains separate means for each of the at least two in situ signals generated. The detector comprise of appropriate filters or other means, such as prism or grating (col. 2, lines 61-65).

The system of Kauvar et al. does not expressly disclose that the label is semiconductor nanocrystal.

Bawendi et al. disclose a system that include of a plurality of labels generating identifiable spectra in response to excitation energy (col. 3, line 32-35; col. 3, line 60-67; col. 5, line 37-40) and a detector imaging at least some of the spectra for identification of the labels (col. 3, line 39-40; col. 15, line 36-41). The spectra comprise a plurality of signals defining a plurality of wavelengths (col. 3, line 60-67). The labels comprise semiconductor nanocrystal (col. 3, line 32-35). Each labels comprises at least one population of semiconductor nanocrystals, each population generating a signal having a population wavelength in response to the excitation energy (col. 3, line 36-41; col. 5, line 37-50). Some of the labels are linked to the substrate and bound to the array (matrix) (col. 12, line 27-34). The system also includes a probe body including a label and an associated assay indicator marker, which generate a signal in response to an interaction between the probe body and an associated test substance so as to indicate results of an assay (col. 14, line 32-39). The indicator markers are generating indicator signals in response to an interaction between the probe body and an associated test substance so as to indicate results of an assay (col.14, line 32-39). The imaged labels are distributed across a two dimensional sensing field (col. 16, line 11-23 and 29-37).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the label is semiconductor nanocrystal as taught by Bawendi et al. in the system of Kauvar et al. One of ordinary skill in the art would have been motivated to include the label is semiconductor nanocrystal in the system of Kauvar et al. for the advantage of providing for high resolution of multiply-sized fluorescent semiconductor nanocrystal within a system and being enables to examine simultaneously a variety of biological moieties tagged with the fluorescent semiconductor nanocrystal (Bawendi: col. 3, lines 56-59).



Art Unit: 1639

16. Claims 8-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bawendi et al (US Patent 6,326,144 B1) and Kauvar et al. (US Patent 6,492,125 B2) as applied to claims 1 and 3-7 above, and further in view of either Lewis et al (US Patent 5,377,003) or Nagoshi et al. (US Patent 5,495,334).

*The instant claimed "system" comprises of a plurality of labels generating identifiable spectra, a first family of the labels generating identifiable spectra having first signal, and a detector. The spectra comprise a plurality of signals for each label. The first label of the first family included an associated second signal. The labels comprise of semiconductor nanocrystal. The detector comprises a diffractor and a sensor.*

The system of Kauvar et al. and Bawendi et al. is disclosed above.

The system of Kauvar et al. and Bawendi et al. differs from the claimed invention in failing to specifically disclose the components of an optical system such as a diffractor, grating, a beam splitter, spatial position indicator, and areal sensor (CCD).

Lewis et al. and Nagoshi et al. disclose a spectroscopic imaging system, which includes a diffractor, grating, a beam splitter, spatial position indicator, and areal sensor (CCD) indicator for a two-dimensional detector (Lewis: Abstract; fig. 10B and 11B; col. 15, line 18-45; Nagoshi: Abstract; col. 1, line 20-31; col. 2, line 65-67 and continue through col. 3, line 1-31) for the advantage of rapidly and simultaneously recording and analyzing thousands of absorption spectra with high spatial resolution (Lewis: col. 5, line 12-15). Further, such optical components are considered conventional and required in an optical system.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Bawendi et al. by including a diffractor, grating, a beam

Art Unit: 1639

splitter, spatial position indicator, and areal sensor (CCD) as taught by Lewis et al. or Nagoshi et al. for the advantage of rapidly and simultaneously recording and analyzing thousands of absorption spectra with high spatial resolution.

### ***Response to Arguments***

17. Applicant's arguments with respect to claims 1, 3-19, and 58 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to My-Chau T. Tran whose telephone number is 703-305-6999. The examiner is on ***Increased Flex Schedule*** and can normally be reached on Monday: 8:00-2:30; Tuesday-Thursday: 7:30-5:00; Friday: 8:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew J. Wang can be reached on 703-306-3217. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9307 for After Final communications.

*Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1123.*

MAF  
5/7/03

  
PADMASHRI PONNALURI  
PRIMARY EXAMINER